

REMARKS

In response to the Office Action Made Final mailed August 7, 2009, Applicants respectfully requests reconsideration. Claims 20-39 were previously pending in this application. Claim 20 has been amended. The application is believed to be in condition for allowance.

Summary of Examiner Interview

Applicant's Attorney thanks Examiner Bloom for a telephonic interview on October 27, 2009 regarding the pending case. During the interview, claims 20-21 and the language "disposed in a common plane" were discussed. While no formal agreement was reached, Applicant's Attorney thanks the Examiner for his helpful comments regarding specifying orientation of recited devices and the meaning of "integrated" in claim 21.

Claim Rejections under 35 USC 102

Claims 20-21, 23-25, 27-31, 33-36 and 38-39 were rejected under 35 USC 102(b) as being anticipated by Wilkinson (WO 99/31563). The rejection is respectfully traversed.

Wilkinson discloses joint transform correlation starting from images displayed side-by-side on a spatial light modulator 1 illuminated by a collimated light source 9. The image is focuses by a lens 3 onto a camera 5, the image is recorded by a frame grabber 13 and processed by a computer 7. Wilkinson uses a two pass process to provide a measure of the correlation of the images.

The Examiner indicated the view that SLM 1 and camera 5 reside in a line in Figure 1, and thus are at least partially disposed on a common plane. While it may be the case that the SLM and camera can be considered to be partially disposed "on" a common plane, they are not disposed "in" a common plane, as required by claim 20. However, to further clarify the invention, Applicants have amended claim 20 to recite that the "image production device and image capture device are disposed in a common plane that is perpendicular to a direction of light incident thereon." Support for the amendment is found at least at paragraphs [0057] and [0060] in the corresponding published patent application US2006/0050986 and in FIGs. 1 and 2.

Since Wilkinson's configuration does not feature "image production device and image capture device are disposed in a common plane that is perpendicular to a direction of light incident thereon," Wilkinson does not anticipate claim 20 as amended.

For at least the above-noted reasons regarding the rejection of base claim 20, respective dependent claims 21, 23-25 and 27-31 are believed to be patentable over Wilkinson.

Regarding claim 33, the Examiner indicated the view that the majority of the limitations of claim 33 are encompassed by the limitations of claim 20. Additionally, the Examiner indicated the view that the thresholding step required by claim 33 has been disclosed by Wilkinson at page 14, lines 1-12. Applicants disagree.

While Wilkinson may disclose thresholding at page 14, lines 1-12, it does not disclose that the image capture device, integrated on a silicon substrate, includes processing circuitry to compare the electrical signal of each pixel of the image capture device against a threshold to provide an output signal per pixel. Rather, Wilkinson discloses processing, including binarisation, of the image from the camera takes place in the frame grabber device (see page 15, lines 24-31). Thus, since Wilkinson does not teach "the image capture device is integrated on a silicon substrate, and the integrated device further comprises processing circuitry constructed and arranged to compare the electrical signal of each pixel of the image capture device against a threshold, and to provide an output signal per pixel" as required by claim 33, it cannot anticipate the claim.

For at least the above-noted reasons regarding the rejection of base claim 33, respective dependent claims 34-36 are believed to be patentable over Wilkinson.

Regarding claim 38, the Examiner indicated the view that Wilkinson teaches "the second image is formed co-planar with the joint representation of the input image and reference image," stating that "Wilkinson has only taught a single image capture device, and thus both the 1st and 2nd images will be formed on the same SLM device." Applicants disagree.

In Applicants application, Figure 1 illustrates an embodiment of a joint transform correlator 1 including an image production and capture device 8 having an image production portion 8a and an image capture portion 8b arranged in a common plane. The image production portion 8a is pixilated and configured to display a reference image and a scene image in a side-by-side manner, thereby forming a joint image. Light 17 which is passed through the image

production and capture device 8 is directed to be incident on a concave curved mirror 10 (light 17a). Light 17b which is reflected from the mirror 10 is an interference pattern indicative of the Fourier transform of joint image data provided by the image production portion 8a.

As described in Wilkinson, the joint representation of the side-by-side images at the SLM 1 is illuminated by the light source 9. The lens 3 focuses the illuminated joint image onto camera 5. Since this image focused on the camera is not formed co-planar with the joint representation of the side-by-side image illuminated at the SLM, Wilkinson does not anticipate claim 38.

Regarding claim 39, the Examiner made reference to the rejection of claims 20, 33 and 34 in support of the rejection of claim 39. Applicants disagree.

Claim 39 requires an integrated circuit that features both the light modulating elements of an SLM and the light capture elements of a light capture device. Wilkinson's disclosure of spatially separate SLM and camera devices does not teach or suggest the integrated circuit configuration of claim 39.

Reconsideration of the rejection under 35 USC 102 is respectfully requested.

Claim Rejections under 35 USC 103

Claim 26 was rejected under 35 USC 103(a) as being unpatentable over Wilkinson as applied to claims 20 and 25. Claim 32 was rejected under 35 USC 103(a) as being unpatentable over Wilkinson as applied to claim 20 and further in view of O'Callaghan (US6369933). Claim 37 was rejected under 35 USC 103(a) as being unpatentable over Wilkinson as applied to claims 20 and 35-36, and further in view of Yamazaki (US2001/0019130). The rejections are respectfully traversed.

Neither of the O'Callaghan or Yamazaki references remedy the deficiencies of Wilkinson. Claims 26 and 32 depend from amended claim 20 and therefore patentably distinguish the prior art of record for at least the same reasons as described above in relation to amended claim 20. Claim 37 depends from amended claim 33 and therefore patentably distinguishes the prior art of record for at least the same reasons as described above in relation to claim 33.


Reconsideration of the rejection under 35 USC 103 is respectfully requested.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

By 
Timothy J. Meagher
Registration No. 39,302
Telephone: (978) 341-0036
Facsimile: (978) 341-0136

Concord, MA 01742-9133

Date: 12/7/9